

AMENDMENTS TO THE CLAIMS:

This listing of claims will replace all prior versions and listings of claims in the application:

DI 1-20. (canceled)

21. (currently amended) A magnetoresistance effect device, comprising:
a substrate having a main surface;
a magnetoresistance effect film formed on the main surface of said substrate and having a magnetic field detecting portion;
a pair of bias magnetic field applying films disposed adjacent to both edge portions of the magnetic field detecting portion, the bias magnetic field applying films having hard magnetic films containing Co as a structural element and having a bi-crystal structure; and
an under-layer having a thickness of 5 to 50 nm disposed between the substrate and the hard magnetic layer, the under-layer being composed of an amorphous layer formed on the substrate and a crystal layer formed on the amorphous layer.

22. (previously presented) The magnetoresistance effect device as set forth in claim 21,
wherein said hard magnetic film containing Co as a structural element has Co(110) oriented perpendicular to the surface thereof.

23. (previously presented) The magnetoresistance effect device as set forth in claim 21,

wherein said hard magnetic film is composed of CoPt or CoCrPt.

24-25. (canceled)

26. (previously presented) The magnetoresistance effect device as set forth in claim 21,

wherein said pair of bias magnetic field applying films are abutted against said magnetoresistance effect film.

27-46. (canceled)

47. (previously presented) A magnetic head, comprising:

a lower magnetic shield layer;

a magnetoresistance effect device formed on said lower magnetic shield layer through a lower reproduction magnetic gap, said magnetoresistance effect device being as set forth in claim 21 or 23; and

an upper magnetic shield layer formed on said magnetoresistance effect device through an upper reproduction magnetic gap.

48. (currently amended) A magnetic recording/reproducing head, comprising:

a reproducing head having a magnetic head as set forth in claim 47;

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a recording head having a lower record magnetic pole in common with said
[[lower]] upper magnetic shield layer of said magnetic head, a record magnetic gap
formed on the lower record magnetic pole, an upper record magnetic pole formed on
the record magnetic gap, and a record coil for supplying a record magnetic field to the
lower record magnetic pole and the upper record magnetic pole.

49-60. (canceled)

61. (previously presented) The magnetoresistance effect device as set
forth in claim 21, wherein the magnetoresistance effect film is a spin valve film
comprising a ferromagnetic film and a non-magnetic film.

62. (previously presented) A magnetoresistance effect device, comprising:
a substrate having a main surface;
a magnetoresistance effect film formed on the main surface of said substrate and
having a magnetic field detecting portion;
a pair of bias magnetic field applying films disposed adjacent to both edge
portions of the magnetic field detecting portion, the bias magnetic field applying films
having hard magnetic films containing Co as a structural element and having a bi-crystal
structure, the hard magnetic films having a residual magnetization Mr of 650 emu/cc or
more.

63. (previously presented) The magnetoresistance effect device as set forth in claim 62, wherein said hard magnetic film containing Co as a structural element has Co(110) oriented perpendicular to the surface thereof.

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Chif 64. (previously presented) The magnetoresistance effect device as set forth in claim 62, wherein said hard magnetic film is composed of CoPt or CoPtCr.

65. (previously presented) The magnetoresistance effect device as set forth in claim 62, wherein said pair of bias magnetic field applying films are abutted against said magnetoresistance effect film.

66. (canceled)

67. (previously presented) The magnetoresistance effect device as set forth in claim 62, wherein an under-layer having a thickness of 5 to 50 nm is disposed between the substrate and the hard magnetic layer, the under-layer being composed of an amorphous layer formed on the substrate and a crystal layer formed on the amorphous layer.

68. (previously presented) The magnetoresistance effect device as set forth in claim 62, wherein the magnetoresistance effect film is a spin valve film comprising a ferromagnetic film and a non-magnetic film.

69. (previously presented) A magnetic head, comprising:

a lower magnetic shield layer;

a magnetoresistance effect device formed on said lower magnetic shield layer

through a lower reproduction magnetic gap, said magnetoresistance effect device being
as set forth in claim 62; and

an upper magnetic shield layer formed on said magnetoresistance effect device
through an upper reproduction magnetic gap.

70. (currently amended) A magnetoresistance effect device comprising:

a substrate having a main surface;

a magnetoresistance effect film formed on the main surface of the substrate and
having a magnetic field detecting portion;

a pair of bias magnetic field applying films, each being disposed adjacent to both
edge portions of the magnetoresistance effect film, said each of the bias magnetic field
applying film comprising an under-layer composed of an amorphous layer and a metal
crystal layer formed on the amorphous layer, and a hard magnetic film formed on the
metal crystal layer of the under-layer, wherein a thickness of the under-layer is 5 to 50
nm.

71. (previously presented) The magnetoresistance effect device as set
forth in claim 70, wherein said hard magnetic film is composed of CoPt alloy.

72. (previously presented) The magnetoresistance effect device as set forth in claim 70, wherein the hard magnetic film has a residual magnetization M_r of 650 emu/cc or more.

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73. (previously presented) The magnetoresistance effect device as set forth in claim 70, wherein the magnetoresistance effect film is a spin valve film comprising a ferromagnetic film and a non-magnetic film.

74. (previously presented) The magnetoresistance effect device as set forth in claim 70, wherein the hard magnetic film has a bi-crystal structure.

75. (previously presented) The magnetoresistance effect device as set forth in claim 70, wherein the metal crystal layer is formed of a crystal metal material having a bcc structure, the crystal metal material being at least one selected from the group consisting of Cr, V, and an alloy thereof.

76-77. (canceled)

78. (previously presented) A magnetic head, comprising:
a lower magnetic shield layer;
a magnetoresistance effect device formed on said lower magnetic shield layer through a lower reproduction magnetic gap, said magnetoresistance effect device being as set forth in claim 70; and

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an upper magnetic shield layer formed on said magnetoresistance effect device
through an upper reproduction magnetic gap.
